

**AMENDMENTS TO THE CLAIMS**

*Please amend the claims as indicated in the following listing of all claims:*

- 5     **1. (Currently Amended)** A capacitor charging circuit for controlling a transformer such that a voltage source coupled to a primary winding of the transformer charges a capacitive load coupled to a secondary winding of the transformer, comprising:
- 10         a power switch coupled to the primary winding such that a primary winding current is allowed to flow during an ON-time of the power switch but is terminated during an OFF-time of the power switch;
- 15         a switch controller for controlling the ON-time and the OFF-time; ~~and~~
- a soft-start circuit for modulating the ON-time to gradually increase during an initial period of a charging process;
- a first current detector for detecting the primary winding current to generate a
- primary current detection signal;
- a reference voltage generator controlled by the soft-start circuit to generate a
- soft-start reference voltage; and
- a first voltage comparator for comparing the primary current detection signal with
- 20         the soft-start reference voltage so as to output an ON-time ending signal to the switch
- controller.
- 2. (Canceled)**
- 3. (Original)** The capacitor charging circuit according to claim 1, further comprising:
- 25         a second current detector for detecting a secondary winding current to generate a secondary current detection signal; and
- a second voltage comparator for comparing the secondary current detection signal with a predetermined reference voltage so as to output an OFF-time ending signal to the

switch controller.

4. **(Original)** The capacitor charging circuit according to claim 1, further comprising:  
a minimum ON-time limiting unit for preventing the power switch from being turned  
5 off before a minimum ON-time expires.

5. **(Original)** The capacitor charging circuit according to claim 4, wherein:  
the minimum ON-time limiting unit outputs a minimum ON-time limiting signal to  
the switch controller for determining the minimum ON-time.

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6. **(Original)** The capacitor charging circuit according to claim 4, wherein:  
the minimum ON-time limiting unit is controlled by the soft-start circuit for  
modulating the minimum ON-time to gradually increase during the initial period of the  
charging process.

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7. **(Original)** The capacitor charging circuit according to claim 1, wherein:  
a minimum OFF-time limiting unit for preventing the power switch from being  
turned on before a minimum OFF-time expires.

20 8. **(Original)** The capacitor charging circuit according to claim 7, wherein:  
the minimum OFF-time limiting unit outputs a minimum OFF-time limiting signal to  
the switch controller for determining the minimum OFF-time.

9. **(Original)** The capacitor charging circuit according to claim 1, further comprising:  
25 a maximum ON-time limiting unit for preventing the power switch from still  
remaining ON after a maximum ON-time expires.

10. **(Original)** The capacitor charging circuit according to claim 9, wherein:

the maximum ON-time limiting unit outputs a maximum ON-time limiting signal to the switch controller for determining the maximum ON-time.

11. **(Currently Amended)** A capacitor charging circuit for controlling a transformer such that a voltage source coupled to a primary winding of the transformer charges a capacitive load coupled to a secondary winding of the transformer, comprising:

a power switch coupled to the primary winding such that a primary winding current is allowed to flow during an ON-time of the power switch but is terminated during an OFF-time of the power switch;

a switch controller for controlling the ON-time and the OFF-time; and  
a minimum ON-time limiting unit for preventing the power switch from being turned off before a minimum ON-time expires;

a first current detector for detecting the primary winding current to generate a primary current detection signal;

a reference voltage generator for generating a soft-start reference voltage; and  
a first voltage comparator for comparing the primary current detection signal with the soft-start reference voltage so as to output an ON-time ending signal to the switch controller.

12. **(Canceled)**

13. **(Currently Amended)** The capacitor charging circuit according to claim 11, wherein:

the minimum ON-time limiting unit outputs a minimum ON-time limiting signal to the first voltage comparator for determining the minimum ON-time.

14. **(Original)** The capacitor charging circuit according to claim 11, further comprising:

a second current detector for detecting a secondary winding current to generate a

secondary current detection signal; and

a second voltage comparator for comparing the secondary current detection signal with a predetermined reference voltage so as to output an OFF-time ending signal to the switch controller.

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15. **(Currently Amended)** A capacitor charging circuit for controlling a transformer such that a voltage source coupled to a primary winding of the transformer charges a capacitive load coupled to a secondary winding of the transformer, comprising:

10 a power switch coupled to the primary winding such that a primary winding current is allowed to flow during an ON-time of the power switch but is terminated during an OFF-time of the power switch;

a switch controller for controlling the ON-time and the OFF-time; ~~and~~

a minimum OFF-time limiting unit for preventing the power switch from being turned on before a minimum OFF-time expires;

15 a first current detector for detecting the primary winding current to generate a primary current detection signal;

a reference voltage generator for generating a soft-start reference voltage; and

20 a first voltage comparator for comparing the primary current detection signal with the soft-start reference voltage so as to output an ON-time ending signal to the switch controller.

16. **(Canceled)**

17. **(Original)** The capacitor charging circuit according to claim 15, wherein:

25 a second current detector for detecting a secondary winding current to generate a secondary current detection signal; and

a second voltage comparator for comparing the secondary current detection signal with a predetermined reference voltage so as to output an OFF-time ending signal to the



switch controller.

18. **(Original)** The capacitor charging circuit according to claim 17, wherein:

the minimum OFF-time limiting unit outputs a minimum OFF-time limiting signal to  
5 the second voltage comparator for determining the minimum OFF-time.

19. **(Currently Amended)** A capacitor charging circuit for controlling a transformer such that a voltage source coupled to a primary winding of the transformer charges a capacitive load coupled to a secondary winding of the transformer, comprising:

10 a power switch coupled to the primary winding such that a primary winding current is allowed to flow during an ON-time of the power switch but is terminated during an OFF-time of the power switch;

a switch controller for controlling the ON-time and the OFF-time; and

15 a maximum ON-time limiting unit for preventing the power switch from still remaining ON after a maximum ON-time expires;

a first current detector for detecting the primary winding current to generate a primary current detection signal;

a reference voltage generator for generating a soft-start reference voltage; and

20 a first voltage comparator for comparing the primary current detection signal with the soft-start reference voltage so as to output an ON-time ending signal to the switch controller.

20. **(Currently Amended)** The capacitor charging circuit according to claim 19, further comprising:

25 ~~a first current detector for detecting the primary winding current to generate a primary current detection signal;~~

~~a reference voltage generator for generating a soft-start reference voltage;~~

~~a first voltage comparator for comparing the primary current detection signal with~~

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~~the soft start reference voltage so as to output an ON-time ending signal to the switch controller;~~

a second current detector for detecting a secondary winding current to generate a secondary current detection signal; and

- 5 a second voltage comparator for comparing the secondary current detection signal with a predetermined reference voltage so as to output an OFF-time ending signal to the switch controller.